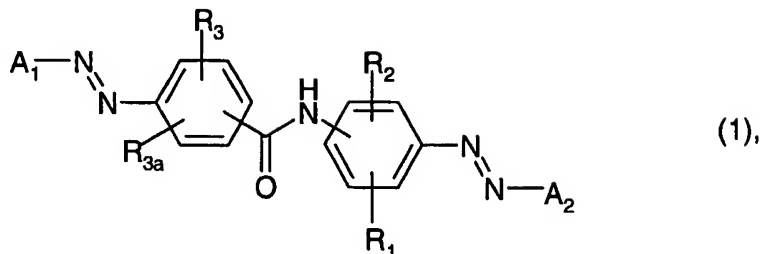


Claims

1. A compound of the formula



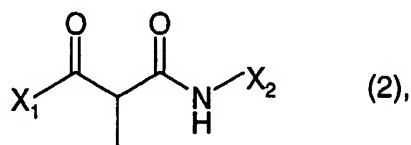
in which

R₁ represents hydrogen, substituted or unsubstituted C₁-C₈alkyl, substituted or unsubstituted C₁-C₈alkoxy or SO₃H,

R₂ represents SO₃H or CO₂H,

R₃ and R_{3a} each, independently of the other, represent hydrogen, a C₁-C₄alkyl group, which may be substituted or unsubstituted, halogen, hydroxy, substituted or unsubstituted C₁-C₄alkoxy, carboxy, NH₂ or NHC₁-C₄alkyl and each of the residues

A₁ and A₂, independently of the other, is derived from a coupling component selected from the group consisting of
an acetoacetylated amine of the formula



in which

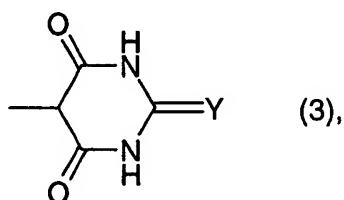
X₁ represents C₁-C₄alkyl, or phenyl which is unsubstituted or monosubstituted by C₁-C₄alkyl, C₁-C₄alkoxy or halogen and

X₂ represents phenyl which is unsubstituted, mono-, di- or trisubstituted by one or two SO₃H, SO₂NHC₁-C₄alkyl groups which alkyl groups may be substituted, SO₂C₁-C₄alkyl, C₁-C₄substituted or unsubstituted alkyl, hydroxy, C₁-C₄alkoxy, halogen, CF₃, NH₂, NHCOC₁-C₄alkyl, NHCOOC₁-C₄alkyl, NHCONHC₁-C₄alkyl, CO₂H, CONHC₁-C₄alkyl or NO₂;

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a 1- or 2-naphthyl residue which is unsubstituted or substituted by one or two SO_3H , $\text{SO}_2\text{NHC}_1\text{-C}_4\text{alkyl}$, carboxy, $\text{CONHC}_1\text{-C}_4\text{alkyl}$, carboxy $\text{C}_1\text{-C}_4\text{alkyl}$ or carboxyaryl groups or a 5- or 6-membered heterocyclic ring containing 1-3 heteroatoms and which may be benzannelated and be further substituted by $\text{C}_1\text{-C}_4\text{alkyl}$, $\text{C}_1\text{-C}_4\text{alkoxy}$ or halogen and which may be attached to the NH-atom in formula (2) either via the hetero- or benzo-nucleus, in the case of benzannelated heterocycles;

a derivative of barbituric acid of the formula

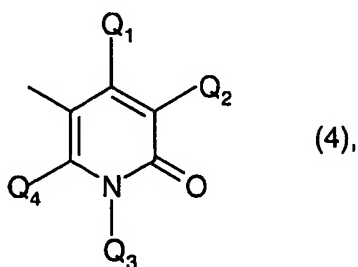


in which

Y represents O, NCN or NCONH₂;

a 2,4,6-triaminopyrimidine derivative;

a pyridone derivative of the formula



in which

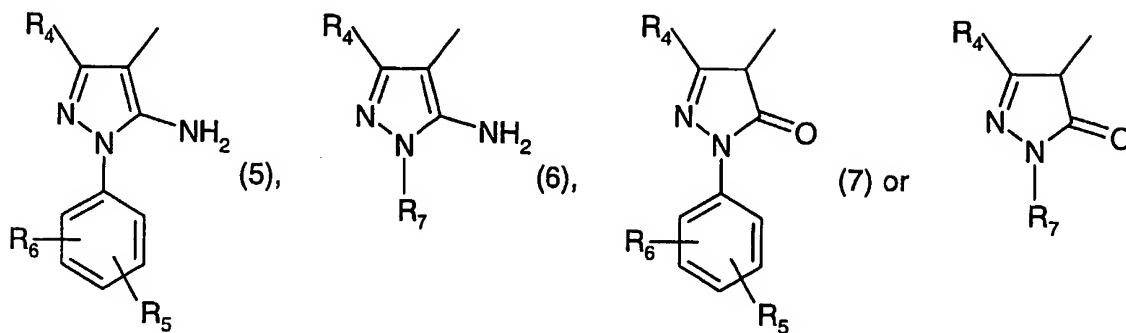
Q₁ represents hydrogen, hydroxy, $\text{C}_1\text{-C}_2\text{alkyl}$, hydroxyethyl, 2-($\text{C}_1\text{-C}_2\text{alkoxy}$)alkyl, $\text{C}_1\text{-C}_2\text{alkoxy}$, COOH, CONH₂ or COOC_{1-C2}alkyl,

Q₂ represents hydrogen, CN, CONH₂, halogen, SO_3H or $\text{C}_1\text{-C}_2\text{alkyl}$ which is unsubstituted or substituted by hydroxy, phenyl or SO_3H ,

Q₃ represents hydrogen, phenyl, $\text{C}_1\text{-C}_2\text{alkylphenyl}$, cyclohexyl or $\text{C}_1\text{-C}_4\text{alkyl}$ which is unsubstituted or substituted by hydroxy, CN, $\text{C}_1\text{-C}_2\text{alkoxy}$ or SO_3H and

Q₄ represents hydrogen or hydroxy;

an aminopyrazole or a pyrazolone derivative of formula



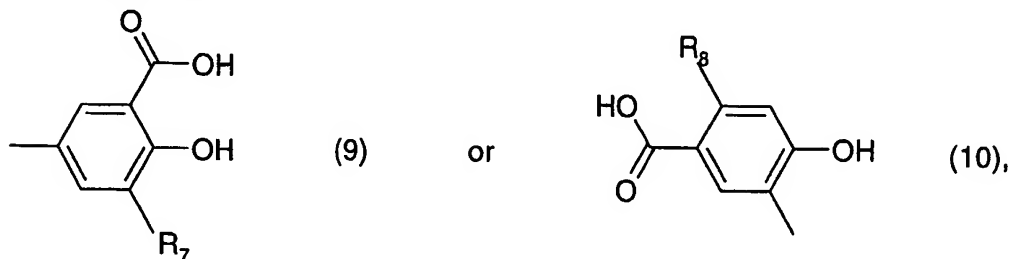
in which

R_4 represents hydrogen, substituted or unsubstituted C_1 - C_4 alkyl, C_2 - C_4 alkenyl, $NHCO$ C_1 - C_4 alkyl or CO_2H , each

R_5 and R_6 , independently of the other, represent hydrogen, halogen, C_1 - C_4 alkyl, SO_3H or CO_2H and

R_7 represents hydrogen or C_1 - C_4 alkyl;

a benzoic acid derivative of formula

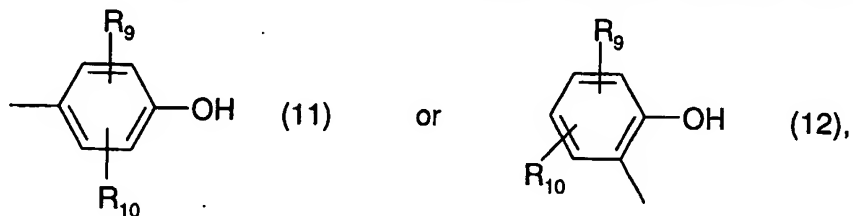


in which

R_7 represents hydrogen or C_1 - C_4 alkyl and

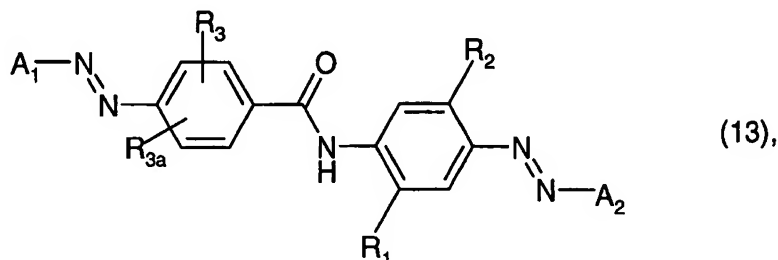
R_8 represents hydrogen or hydroxy or

A_1 and A_2 , each one independently of the other, represent a phenol residue of the formula



in which

R_9 and R_{10} , each one independently of the other, represent hydrogen, C_1 - C_4 alkyl, C_1 - C_4 alkoxy, hydroxy, halogen, NH_2 , $NHCO$ C_1 - C_4 alkyl, NO_2 , SO_3H , CO_2C_1 - C_4 alkyl or $CONHC_1$ - C_4 alkyl groups,
with the proviso that in compounds of formula



if

R_1 , R_2 , R_3 and R_{3a} each, independently of the others, are hydrogen or SO_3H , then
 A_1 and A_2 are not both a 1-phenyl or 1-sulphophenyl-3-methyl-5-aminopyrazole residue,
or, if

R_1 , R_2 , R_3 and R_{3a} represent hydrogen and

A_1 is a residue of formula (9) in which

R_7 represents hydrogen or methyl, then

A_2 does not represent a 1-phenyl or 1-sulphophenyl-3-methyl- or 3-carboxy pyrazol-5-one residue

or, if

R_1 , R_3 and R_{3a} are hydrogen and R_2 is SO_3H and one of

A_1 and A_2 represents a 1-sulphophenyl-3-methyl pyrazol-5-one residue, then the other is not
a residue of formula (11) in which both

R_9 and R_{10} are hydrogen, or if

A_1 represents a 1-nitrophenyl-, a 1-phenyl- or an unsubstituted 3-methyl pyrazol-5-one residue,

A_2 is not a residue of formula (9) in which R_7 represents hydrogen, or if

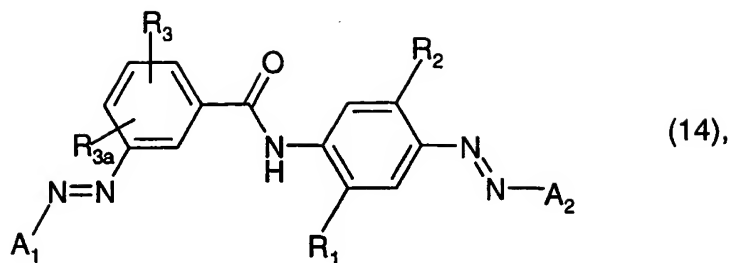
R_1 , R_3 and R_{3a} represent hydrogen, R_2 is CO_2H and

A_1 represents a residue of formula (9), in which R_7 is hydrogen,

A_2 is not a residue of formula (2) or formula (7);

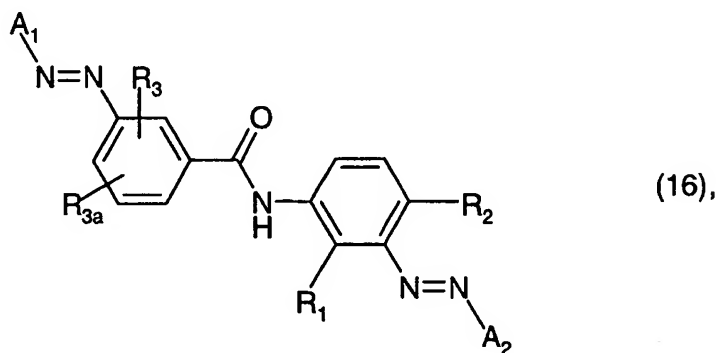
in compounds of the formula

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if

R_2 represents CO_2H , R_3 represents hydroxy or methoxy and R_{3a} represents hydrogen,
 A_1 and A_2 do not represent residues of formulae (2) or (7) and,
 in compounds of the formula

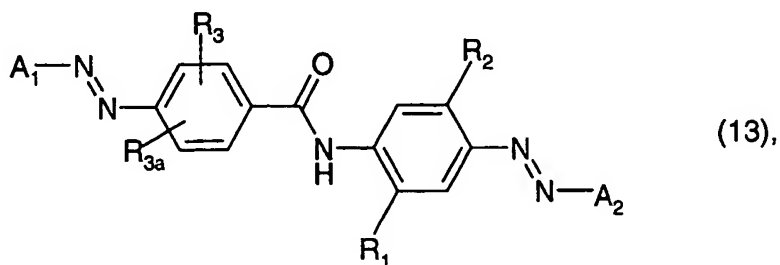


if

R_2 represents SO_3H and R_3 and R_{3a} both represent hydrogen
 A_1 and A_2 are not both 2,4-dihydroxyphenyl.

2. A compound of formula (1), according to claim 1, which contains a total number of two, three or four SO_3H and/or CO_2H groups.

3. A compound of the formula



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according to claims 1 or 2, in which

R₁ represents hydrogen, C₁-C₄alkyl, C₁-C₄alkoxy or SO₃H,

R₂ represents SO₃H or CO₂H,

R₃ represents hydrogen, a C₁-C₄alkyl group, halogen, hydroxy, C₁-C₄alkoxy, carboxy, NH₂ or NHC₁-C₄alkyl,

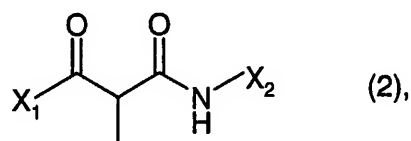
R_{3a} represents hydrogen or NH₂ and

A₁ and A₂ are as defined in claim 1.

4. A compound of formula (13), according to claim 3, in which

R₃ and R_{3a} both represent hydrogen and

A₁ and A₂, each one independently of the other, is derived from a coupling component selected from the group consisting of an acetoacetylated amine of the formula



in which

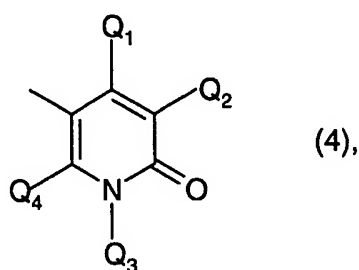
X₁ represents C₁-C₄alkyl, and

X₂ represents phenyl, which is unsubstituted, mono-, di- or trisubstituted by SO₃H, C₁-C₄alkyl, hydroxy, C₁-C₄alkoxy, halogen or CO₂H; barbituric acid or cyanoiminobarbituric acid;

2,4,6-triaminopyrimidine;

citrazinic acid;

a pyridone derivative of the formula



in which

Q₁ represents C₁-C₂alkyl,

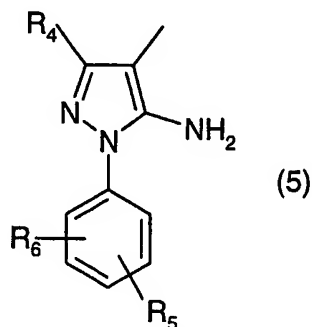
- 75 -

Q_2 represents CN, $CONH_2$ or CH_2SO_3H ,

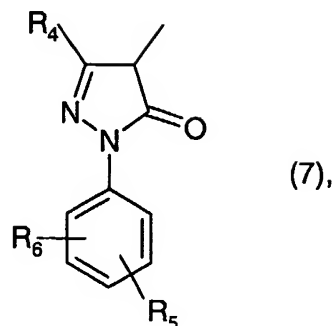
Q_3 represents C_1 - C_2 alkyl and

Q_4 represents hydroxy;

an aminopyrazole or a pyrazolone derivative of formula



or



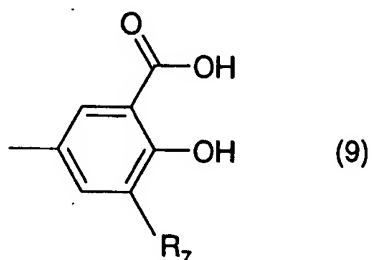
in which

R_4 represents C_1 - C_4 alkyl or CO_2H ,

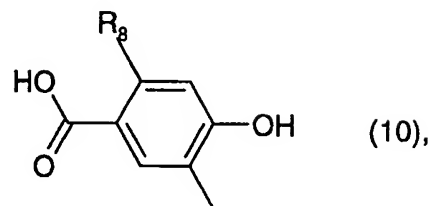
R_5 represents hydrogen, halogen, C_1 - C_4 alkyl, SO_3H or CO_2H and

R_6 represents hydrogen;

a benzoic acid derivative of formula



or

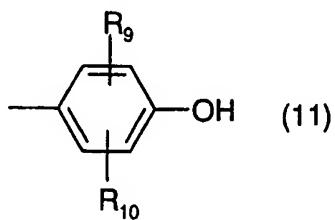


in which

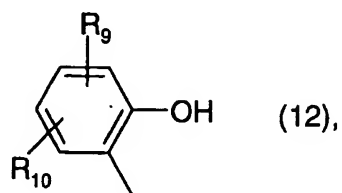
R_7 represents hydrogen or C_1 - C_4 alkyl and

R_8 represents hydrogen or hydroxy or

A_1 and A_2 , each one independently of the other, represent a phenol residue of the formula



or

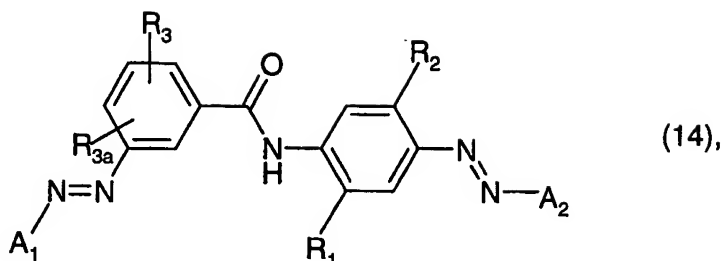


in which

R_9 represents hydrogen, C_1 - C_4 alkyl, C_1 - C_4 alkoxy, hydroxy, halogen or SO_3H and

R₁₀ represents hydrogen.

5. A compound of formula



according to claims 1 or 2, in which

R₁ represents hydrogen, C₁-C₄alkyl, C₁-C₄alkoxy or SO₃H,

R₂ represents SO₃H or CO₂H,

R₃ represents hydrogen, a C₁-C₄alkyl group, halogen, hydroxy, C₁-C₄alkoxy, carboxy, NH₂ or NHC₁-C₄alkyl,

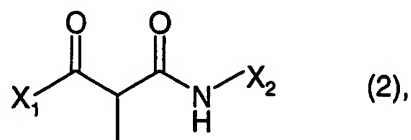
R_{3a} represents hydrogen or NH₂ and

A₁ and A₂ are as defined in claim 1.

6. A compound of formula (14), according to claim 5, in which

R₃ and R_{3a} both represent hydrogen and

A₁ and A₂, each one independently of the other, is derived from a coupling component selected from the group consisting of an acetoacetylated amine of the formula



in which

X₁ represents C₁-C₄alkyl, and

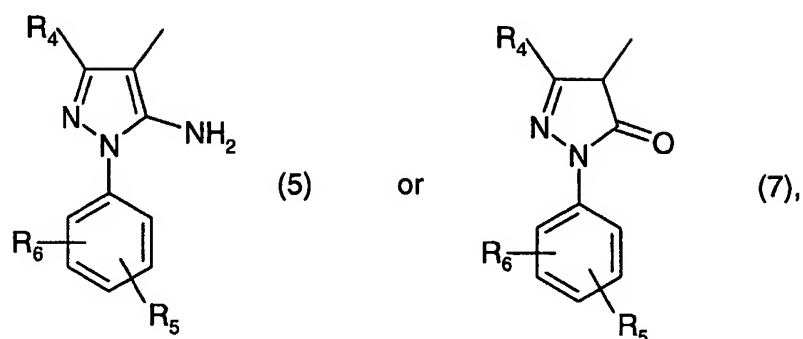
X₂ represents phenyl, which is unsubstituted, mono-, di- or trisubstituted by SO₃H, C₁-C₄alkyl, hydroxy, C₁-C₄alkoxy, halogen or CO₂H; barbituric acid or cyanoiminobarbituric acid;

2,4,6-triaminopyrimidine;

citrazinic acid;

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an aminopyrazole or a pyrazolone derivative of formula



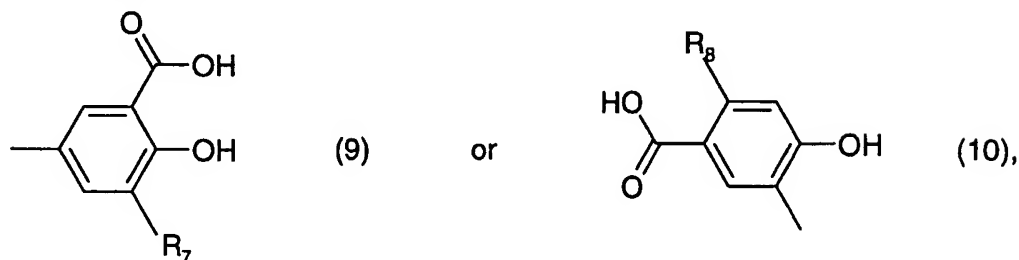
in which

R₄ represents C₁-C₄alkyl or CO₂H,

R₅ represents hydrogen, halogen, C₁-C₄alkyl, SO₃H or CO₂H and

R₆ represents hydrogen;

a benzoic acid derivative of formula

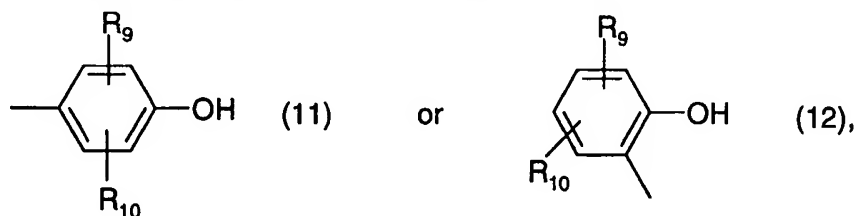


in which

R₇ represents hydrogen or C₁-C₄alkyl and

R₈ represents hydrogen or hydroxy or

A₁ and A₂, each one independently of the other, represent a phenol residue of the formula

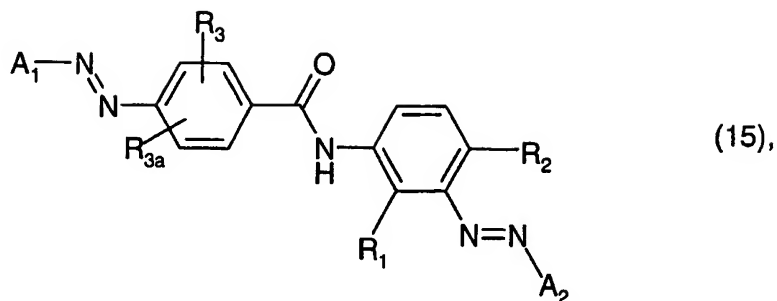


in which

R₉ represents hydrogen, C₁-C₄alkyl, C₁-C₄alkoxy, hydroxy, halogen or SO₃H and

R₁₀ represents hydrogen.

7. A compound of formula



according to claims 1 or 2, in which

R_1 represents hydrogen, C_1 - C_4 alkyl, C_1 - C_4 alkoxy or SO_3H ,

R_2 represents SO_3H or CO_2H ,

R_3 represents hydrogen, a C_1 - C_4 alkyl group, halogen, hydroxy, C_1 - C_4 alkoxy, carboxy, NH_2 or NHC_1 - C_4 alkyl,

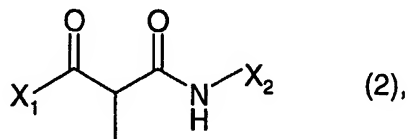
R_{3a} represents hydrogen or NH_2 and

A_1 and A_2 are as defined in claim 1.

8. A compound of formula (15), according to claim 7, in which

R_3 and R_{3a} both represent hydrogen and

A_1 and A_2 , each one independently of the other, is derived from a coupling component selected from the group consisting of an acetoacetylated amine of the formula



in which

X_1 represents C_1 - C_4 alkyl, and

X_2 represents phenyl, which is unsubstituted, mono-, di- or trisubstituted by SO_3H , C_1 - C_4 alkyl, hydroxy, C_1 - C_4 alkoxy, halogen or CO_2H ;

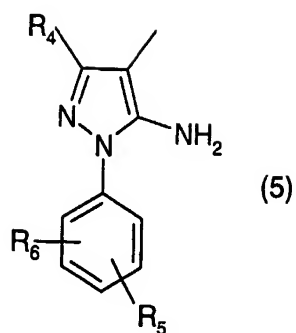
barbituric acid or cyanoiminobarbituric acid;

2,4,6-triaminopyrimidine;

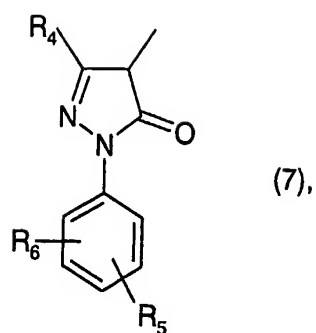
citrazinic acid;

an aminopyrazole or a pyrazolone derivative of formula

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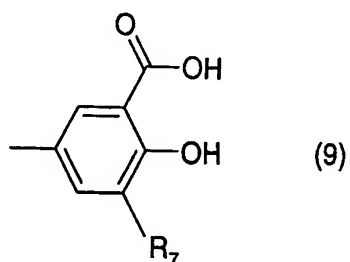
or



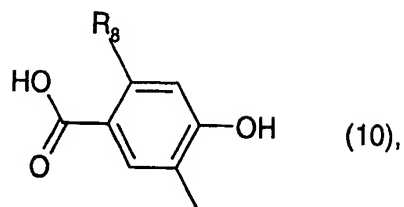
in which

 R_4 represents C_1 - C_4 alkyl or CO_2H , R_5 represents hydrogen, halogen, C_1 - C_4 alkyl, SO_3H or CO_2H and R_6 represents hydrogen;

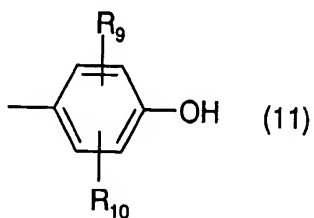
a benzoic acid derivative of formula



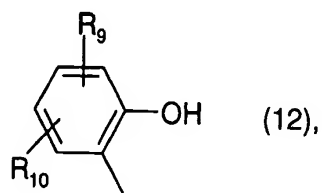
or



in which

 R_7 represents hydrogen or C_1 - C_4 alkyl and R_8 represents hydrogen or hydroxy or A_1 and A_2 , each one independently of the other, represent a phenol residue of the formula

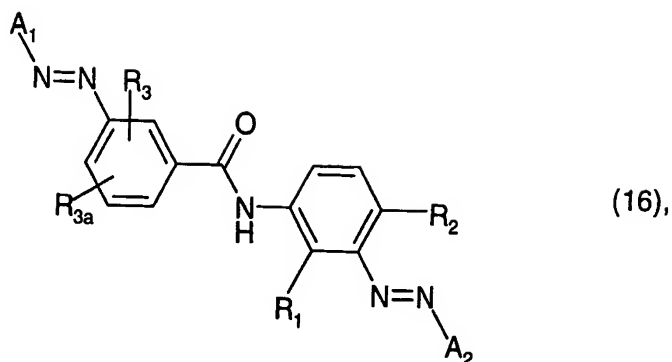
or



in which

 R_9 represents hydrogen, C_1 - C_4 alkyl, C_1 - C_4 alkoxy, hydroxy, halogen or SO_3H and R_{10} represents hydrogen.

9. A compound of formula



according to claims 1 or 2, in which

R_1 represents hydrogen, C_1 - C_4 alkyl, C_1 - C_4 alkoxy or SO_3H ,

R_2 represents SO_3H or CO_2H ,

R_3 represents hydrogen, a C_1 - C_4 alkyl group, halogen, hydroxy, C_1 - C_4 alkoxy, carboxy, NH_2 or NHC_1 - C_4 alkyl,

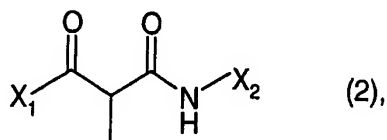
R_{3a} represents hydrogen or NH_2 and

A_1 and A_2 are as defined in claim 1.

10. A compound of formula (16), according to claim 9, in which

R_3 and R_{3a} both represent hydrogen and

A_1 and A_2 , each one independently of the other, is derived from a coupling component selected from the group consisting of an acetoacetylated amine of the formula



in which

X_1 represents C_1 - C_4 alkyl, and

X_2 represents phenyl, which is unsubstituted, mono-, di- or trisubstituted by SO_3H , C_1 - C_4 alkyl, hydroxy, C_1 - C_4 alkoxy, halogen or CO_2H ;

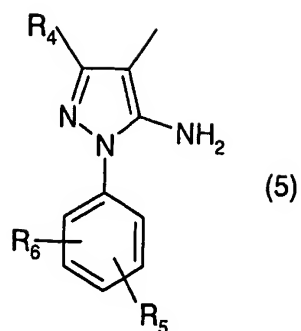
barbituric acid or cyanoiminobarbituric acid;

2,4,6-triaminopyrimidine;

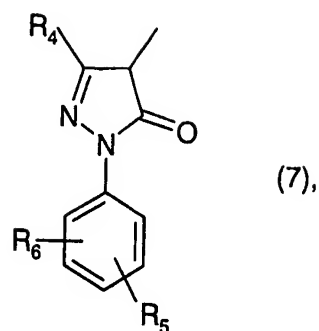
citrazinic acid;

an aminopyrazole or a pyrazolone derivative of formula

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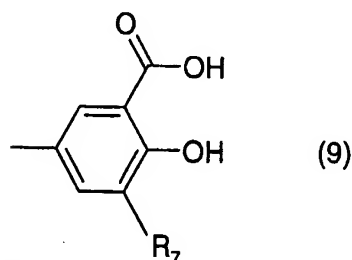
or



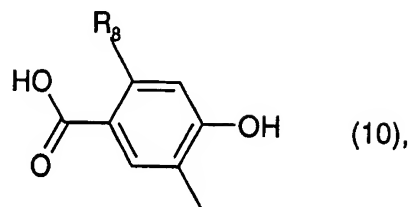
in which

 R_4 represents C_1 - C_4 alkyl or CO_2H , R_5 represents hydrogen, halogen, C_1 - C_4 alkyl, SO_3H or CO_2H and R_6 represents hydrogen;

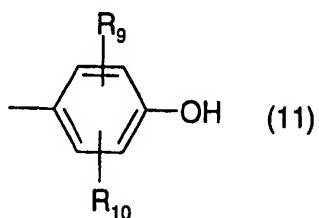
a benzoic acid derivative of formula



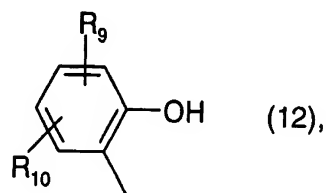
or



in which

 R_7 represents hydrogen or C_1 - C_4 alkyl and R_8 represents hydrogen or hydroxy or A_1 and A_2 , each one independently of the other, represent a phenol residue of the formula

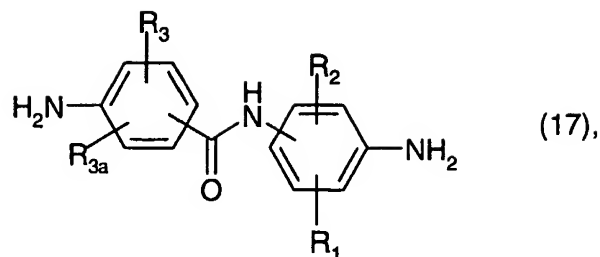
or



in which

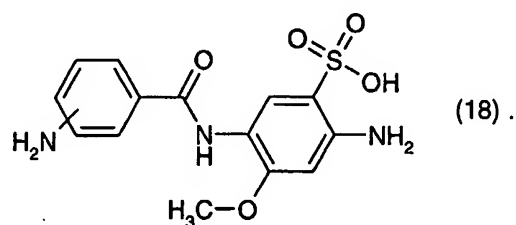
 R_9 represents hydrogen, C_1 - C_4 alkyl, C_1 - C_4 alkoxy, hydroxy, halogen or SO_3H and R_{10} represents hydrogen.

11. A process for the preparation of a compound of formula (1), according to claim 1, by tetrazotisation of a diaminobenzanilide derivative of the formula



in which R_1 , R_2 , R_3 and R_{3a} are as defined in claim 1, and sequential coupling with a coupling component of the formula A_1H or A_2H , followed by coupling with a coupling component of the formula A_2H or A_1H , A_2 and A_1 being as defined in claim 1.

12. A compound of the formula



13. A process for the preparation of compound (18), according to claim 12, by reaction of 2-methoxy-4-nitroaniline-5-sulphonic acid with the appropriate nitrobenzoyl halide, followed by reduction of the resulting dinitrobenzanilide.

14. Use of the compound of formula (18), according to claim 12, for the preparation of the appropriate compound of formula (1), according to claim 1.

15. Use of the compound of formula (1), according to claim 1, for dyeing natural or synthetic materials.

16. A solid dye preparation for dyeing paper, comprising a compound of the formula (1) according to claim 1, and, optionally, further auxiliaries.

17. Aqueous solutions for dyeing paper, comprising a compound of the formula (1), according to claim 1, and, optionally, further auxiliaries.

18. Aqueous solutions according to claim 17 containing, as further auxiliaries, solubilizers and/or organic solvents.
19. Paper which is dyed with a compound of the formula (1), according to claim 1, in the form of a solid dye preparation, according to claim 16, or an aqueous solution, according to claim 17.